

What is claimed is:

1 1. A broadcasting apparatus that broadcasts a specific  
2 program to which a reproduction time period between a starting  
3 time and a finishing time is specified, the reproduction being  
4 performed by a receiving apparatus, the broadcasting apparatus  
5 comprising:

6 allotment means for allotting a broadcasting bandwidth  
7 for the reproduction time period to the specific program and  
8 allotting a part of the broadcasting bandwidth for a preceding  
9 time period immediately before the reproduction time period to  
10 the specific program and the other part of the broadcasting  
11 bandwidth to another program; and

12 transmission means, in accordance with the result of  
13 allotment by the allotment means, for (a) repeatedly  
14 transmitting program data of the other program while  
15 transmitting program data of the specific program in the  
16 preceding time period, and (b) repeatedly transmitting the  
17 program data of the specific program in the reproduction time  
18 period.

1 2. The broadcasting apparatus of Claim 1,

2 wherein the allotment means allots the broadcasting  
3 bandwidth for the preceding time period so that the part of the  
4 broadcasting bandwidth becomes narrower than the other part of  
5 the broadcasting bandwidth, and

6 the preceding time period is longer than a time period  
7 that is necessary for transmitting the program data of the

8 specific program at least once using the part of the bandwidth.

1 3. The broadcasting apparatus of Claim 1, further  
2 comprising:

3 generation means for (a) generating a first instruction  
4 that instructs the receiving apparatus to store the program data  
5 of the specific program in a storing unit in the receiving  
6 apparatus, and (b) generating a second instruction that  
7 instructs the receiving apparatus to reproduce the program data  
8 in case that the program data of the specific program has been  
9 stored in the storing unit,

10 wherein the transmission means transmits a plurality of  
11 the first instructions in the preceding time period and  
12 transmits the second instruction at the starting time of the  
13 reproduction time period.

1 4. The broadcasting apparatus of Claim 1, further  
2 comprising:

3 storage means for storing as the program data of the  
4 specific program (a) first contents data that makes up the  
5 specific program and (b) second contents data that is different  
6 from the first contents data in part,

7 wherein the transmission means transmits the first  
8 contents data in the preceding time period and transmits the  
9 second contents data in the reproduction time period of the  
10 specific program.

1 5. The broadcasting apparatus of Claim 1,  
 2 wherein the transmission means further transmits a normal  
 3 program that includes a video stream and an audio stream,  
 4 the specific program has the program data that relates  
 5 to a commercial program which is inserted in the normal program,  
 6 and  
 7 the reproduction time period of the specific program is  
 8 the same as a broadcast time period of the commercial program.

1 6. The broadcasting apparatus of Claim 5,  
 2 wherein the allotment means allots the broadcasting  
 3 bandwidth for the preceding time period so that the part of the  
 4 broadcasting bandwidth becomes narrower than the other part of  
 5 the broadcasting bandwidth, and  
 6 the preceding time period is longer than a time period  
 7 that is necessary for transmitting the program data of the  
 8 specific program at least once using the part of the bandwidth.

1 7. The broadcasting apparatus of Claim 6, further  
 2 comprising:  
 3 generation means for (a) generating a first instruction  
 4 that instructs the receiving apparatus to store the program data  
 5 of the specific program in a storing unit in the receiving  
 6 apparatus, and (b) generating a second instruction that  
 7 instructs the receiving apparatus to reproduce the program data  
 8 in case that the program data of the specific program has been

9 stored in the storing unit,  
10 wherein the transmission means transmits a plurality of  
11 the first instructions in the preceding time period and  
12 transmits the second instruction at the starting time of the  
13 reproduction time period.

1 8. The broadcasting apparatus of Claim 7, further  
2 comprising:

3 storage means for storing as the program data of the  
4 specific program (a) first contents data that makes up the  
5 specific program and (b) second contents data that is different  
6 from the first contents data in part,

7 wherein the transmission means transmits the first  
8 contents data in the preceding time period and transmits the  
9 second contents data in the reproduction time period of the  
10 specific program.

1 9. A broadcasting apparatus that transmits a data  
2 broadcasting program and a first and a second specific programs  
3 which are inserted in the data broadcasting program, the  
4 broadcasting apparatus comprising:

5 allotment means for

6 (a) allotting a broadcasting bandwidth for a first time  
7 period and a second time period to the first specific program  
8 and the second specific program, the first time period and the  
9 second time period are included in a total time period between  
10 a starting time and a finishing time for broadcasting the data



38 time period, and (d) the second reproduction instruction at the  
39 starting time of the second time period.

1 10. The broadcasting apparatus of Claim 9,  
2 wherein the transmission means further transmits a normal  
3 program that includes a video stream and an audio stream,  
4 the first specific program and the second specific  
5 program respectively have the program data that relates to a  
6 first commercial program and a second commercial program which  
7 are inserted in the normal program, and  
8 the first time period and the second time period  
9 respectively are the same as broadcast time periods of the first  
10 commercial program and the second commercial program.

1 11. The broadcasting apparatus of Claim 10, further  
2 comprising:  
3 storage means for storing as the program data of the first  
4 specific program (a) first contents data that makes up the first  
5 specific program and (b) second contents data that is different  
6 from the first contents data in part,  
7 wherein the transmission means transmits the first  
8 contents data in a time period other than the first time period  
9 in the total time period, and transmits the second contents data  
10 in the first time period.

1 12. A broadcasting apparatus that transmits a data  
2 broadcasting program and a first and a second specific programs

3 which are inserted in the data broadcasting program, the  
4 broadcasting apparatus comprising:

5 allotment means for

6 (a) allotting a broadcasting bandwidth for a first time  
7 period and a second time period to the first specific program  
8 and the second specific program, the first time period and the  
9 second time period are included in a total time period between  
10 a starting time and a finishing time for broadcasting the data  
11 broadcasting program, and

12 (b) allotting (1) a broadcasting bandwidth to the data  
13 broadcasting data program in the total time period except for  
14 the first time period and the second time period, (2) a part  
15 of the broadcasting bandwidth to the first specific program for  
16 a time period preceding to the first time period in the total  
17 time period, and (3) a part of the broadcasting bandwidth to  
18 the second specific program for a time period preceding to the  
19 second time period in the total time period;

20 instruction generation means for generating a first  
21 storage instruction and a second storage instruction that  
22 instruct a receiving apparatus to store a program data for the  
23 first specific program and a program data for the second  
24 specific program in a storing unit in the receiving apparatus,  
25 respectively, and generating a first reproduction instruction  
26 and a second reproduction instruction that instruct the  
27 receiving apparatus to reproduce the program data for the first  
28 specific program and the program data for the second specific  
29 program, respectively, in case that the program data for the

30 first specific program and the program data for the second  
31 specific program have been stored in the storing unit;

32 transmission means for repeatedly transmitting the  
33 program data of each of the data broadcasting program, the first  
34 specific program, and the second specific program in accordance  
35 with the result of allotment by the allotment means; and

36 control means for controlling the transmission means so  
37 as to transmit (a) a plurality of the first storage instructions  
38 before the first time period, (b) a plurality of the second  
39 storage instructions before the second time period, (c) the  
40 first reproduction instruction at the starting time of the first  
41 time period, and (d) the second reproduction instruction at the  
42 starting time of the second time period.

1 13. The broadcasting apparatus of Claim 12,  
2 wherein the transmission means further transmits a normal  
3 program that includes a video stream and an audio stream,  
4 the first specific program and the second specific  
5 program respectively have the program data that relates to a  
6 first commercial program and a second commercial program which  
7 are inserted in the normal program, and  
8 the first time period and the second time period  
9 respectively are the same as broadcast time periods of the first  
10 commercial program and the second commercial program.

1 14. The broadcasting apparatus of Claim 13, further  
2 comprising:



3 storage means for storing as the program data of the first  
4 specific program (a) first contents data that makes up the first  
5 specific program and (b) second contents data that is different  
6 from the first contents data in part,

7 wherein the transmission means transmits the first  
8 contents data in a time period preceding to the first time period  
9 in the total time period, and transmits the second contents data  
10 in the first time period.

1 15. A broadcasting method for broadcasting a specific program  
2 to which a reproduction time period between a starting time and  
3 a finishing time is specified, the reproduction being performed  
4 by a receiving apparatus, the broadcasting method comprising  
5 the steps of:

6 an allotment step for allotting a broadcasting bandwidth  
7 for the reproduction time period to the specific program and  
8 allotting a part of the broadcasting bandwidth for a preceding  
9 time period immediately before the reproduction time period to  
10 the specific program and the other part of the broadcasting  
11 bandwidth to another program; and

12 a transmission step, in accordance with the result of  
13 allotment in the allotment step, for (a) repeatedly transmitting  
14 program data of the other program while transmitting program  
15 data of the specific program in the preceding time period, and  
16 (b) repeatedly transmitting the program data of the specific  
17 program in the reproduction time period.

1 16. A broadcasting method for broadcasting a data  
2 broadcasting program and a first specific program and a second  
3 specific program which are inserted in the data broadcasting  
4 program, the broadcasting method comprising the steps of:

5 an allotment step for

6 (a) allotting a broadcasting bandwidth for a first time  
7 period and a second time period to the first specific program  
8 and the second specific program, the first time period and the  
9 second time period are included in a total time period between  
10 a starting time and a finishing time for broadcasting the data  
11 broadcasting program, and

12 (b) allotting a part of the broadcasting bandwidth to the  
13 first and the second specific programs and the other part of  
14 the broadcasting bandwidth to the data broadcasting program for  
15 all of time periods other than the first and the second time  
16 periods in the total time period;

17 an instruction generation step for generating a first  
18 storage instruction and a second storage instruction that  
19 instruct the receiving apparatus to store a program data for  
20 the first specific program and a program data for the second  
21 specific program in a storing unit in the receiving apparatus,  
22 respectively, and generating a first reproduction instruction  
23 and a second reproduction instruction that instruct a receiving  
24 apparatus to reproduce the program data for the first specific  
25 program and the program data for the second specific program,  
26 respectively, in case that the program data for the first  
27 specific program and the program data for the second specific

28 program have been stored in the storing unit; and  
29 a transmission step for transmitting (a) a plurality of  
30 the first storage instructions before the first time period,  
31 (b) the first reproduction instruction at the starting time of  
32 the first time period, (c) a plurality of the second storage  
33 instructions before the second time period, and (d) the second  
34 reproduction instruction at the starting time of the second time  
35 period, while repeatedly transmitting the program data of each  
36 of the data broadcasting program, the first specific program,  
37 and the second specific program in accordance with the result  
38 of allotment in the allotment step.

1 17. A broadcasting method for broadcasting a data  
2 broadcasting program and a first specific program and a second  
3 specific program which are inserted in the data broadcasting  
4 program, the broadcasting method comprising the steps of:  
5 an allotment step for  
6 (a) allotting a broadcasting bandwidth for a first time  
7 period and a second time period to the first specific program  
8 and the second specific program, the first time period and the  
9 second time period are included in a total time period between  
10 a starting time and a finishing time for broadcasting the data  
11 broadcasting program, and  
12 (b) allotting (1) a broadcasting bandwidth to the data  
13 broadcasting data program in the total time period except for  
14 the first time period and the second time period, (2) a part  
15 of the broadcasting bandwidth to the first specific program for

16 a time period preceding to the first time period in the total  
 17 time period, and (3) a part of the broadcasting bandwidth to  
 18 the second specific program for a time period preceding to the  
 19 second time period in the total time period;

20 an instruction generation step for generating a first  
 21 storage instruction and a second storage instruction that  
 22 instruct a receiving apparatus to store a program data for the  
 23 first specific program and a program data for the second  
 24 specific program in a storing unit in the receiving apparatus,  
 25 respectively, and generating a first reproduction instruction  
 26 and a second reproduction instruction that instruct the  
 27 receiving apparatus to reproduce the program data for the first  
 28 specific program and the program data for the second specific  
 29 program, respectively, in case that the program data for the  
 30 first specific program and the program data for the second  
 31 specific program have been stored in the storing unit; and

32 a transmission step for transmitting (a) a plurality of  
 33 the first storage instructions before the first time period,  
 34 (b) a plurality of the second storage instructions before the  
 35 second time period, (c) the first reproduction instruction at  
 36 the starting time of the first time period, and (d) the second  
 37 reproduction instruction at the starting time of the second time  
 38 period, while repeatedly transmitting the program data of each  
 39 of the data broadcasting program, the first specific program,  
 40 and the second specific program in accordance with the result  
 41 of allotment in the allotment step.

1 18. A program recording medium which is readable for a  
2 computer in a broadcasting apparatus, the broadcasting  
3 apparatus broadcasts a specific program to which a reproduction  
4 time period between a starting time and finishing time is  
5 specified, the reproduction being performed by a receiving  
6 apparatus, a computer program embodied on the program recording  
7 medium has the computer conduct the steps of:

8 an allotment step for allotting a broadcasting bandwidth  
9 for the reproduction time period to the specific program and  
10 allotting a part of the broadcasting bandwidth for a preceding  
11 time period immediately before the reproduction time period to  
12 the specific program and the other part of the broadcasting  
13 bandwidth to other program; and

14 a transmission step, in accordance with the result of  
15 allotment in the allotment step, for (a) repeatedly transmitting  
16 program data of the other program while transmitting program  
17 data of the specific program in the preceding time period, and  
18 (b) repeatedly transmitting the program data of the specific  
19 program in the reproduction time period.

1 19. A program recording medium which is readable for a  
2 computer in a broadcasting apparatus, the broadcasting  
3 apparatus transmits a data broadcasting program and a first and  
4 a second specific programs which are inserted in the data  
5 broadcasting program, a computer program embodied on the  
6 program recording medium has the computer conduct the steps of:

7 an allotment step for

8 (a) allotting a broadcasting bandwidth for a first time  
9 period and a second time period to the first specific program  
10 and the second specific program, the first time period and the  
11 second time period are included in a total time period between  
12 a starting time and a finishing time for broadcasting the data  
13 broadcasting program, and

14 (b) allotting a part of the broadcasting bandwidth to the  
15 first and the second specific programs and the other part of  
16 the broadcasting bandwidth to the data broadcasting program for  
17 all of time periods other than the first and the second time  
18 periods in the total time period;

19 an instruction generation step for generating a first  
20 storage instruction and a second storage instruction that  
21 instruct the receiving apparatus to store a program data for  
22 the first specific program and a program data for the second  
23 specific program in a storing unit in the receiving apparatus,  
24 respectively, and generating a first reproduction instruction  
25 and a second reproduction instruction that instruct a receiving  
26 apparatus to reproduce the program data for the first specific  
27 program and the program data for the second specific program,  
28 respectively, in case that the program data for the first  
29 specific program and the program data for the second specific  
30 program have been stored in the storing unit; and

31 a transmission step for transmitting (a) a plurality of  
32 the first storage instructions before the first time period,  
33 (b) the first reproduction instruction at the starting time of  
34 the first time period, (c) a plurality of the second storage







4 time and finishing time is specified, the reproduction being  
5 performed by a receiving apparatus, the program has the computer  
6 conduct the steps of:

7 an allotment step for allotting a broadcasting bandwidth  
8 for the reproduction time period to the specific program and  
9 allotting a part of the broadcasting bandwidth for a preceding  
10 time period immediately before the reproduction time period to  
11 the specific program and the other part of the broadcasting  
12 bandwidth to other program; and

13 a transmission step, in accordance with the result of  
14 allotment in the allotment step, for (a) repeatedly transmitting  
15 program data of the other program while transmitting program  
16 data of the specific program in the preceding time period, and  
17 (b) repeatedly transmitting the program data of the specific  
18 program in the reproduction time period.

1 22. A program that is readable for a computer in a broadcasting  
2 apparatus, the broadcasting apparatus transmits a data  
3 broadcasting program and a first and a second specific programs  
4 which are inserted in the data broadcasting program, the program  
5 has the computer conduct the steps of:

6 an allotment step for

7 (a) allotting a broadcasting bandwidth for a first time  
8 period and a second time period to the first specific program  
9 and the second specific program, the first time period and the  
10 second time period are included in a total time period between  
11 a starting time and a finishing time for broadcasting the data

12 broadcasting program, and

13 (b) allotting a part of the broadcasting bandwidth to the  
14 first and the second specific programs and the other part of  
15 the broadcasting bandwidth to the data broadcasting program for  
16 all of time periods other than the first and the second time  
17 periods in the total time period;

18 an instruction generation step for generating a first  
19 storage instruction and a second storage instruction that  
20 instruct the receiving apparatus to store a program data for  
21 the first specific program and a program data for the second  
22 specific program in a storing unit in the receiving apparatus,  
23 respectively, and generating a first reproduction instruction  
24 and a second reproduction instruction that instruct a receiving  
25 apparatus to reproduce the program data for the first specific  
26 program and the program data for the second specific program,  
27 respectively, in case that the program data for the first  
28 specific program and the program data for the second specific  
29 program have been stored in the storing unit; and

30 a transmission step for transmitting (a) a plurality of  
31 the first storage instructions before the first time period,  
32 (b) the first reproduction instruction at the starting time of  
33 the first time period, (c) a plurality of the second storage  
34 instructions before the second time period, and (d) the second  
35 reproduction instruction at the starting time of the second time  
36 period, while repeatedly transmitting the program data of each  
37 of the data broadcasting program, the first specific program,  
38 and the second specific program in accordance with the result

39 of allotment in the allotment step.

1 23. A program that is readable for a computer in a broadcasting  
2 apparatus, the broadcasting apparatus transmits a data  
3 broadcasting program and a first and a second specific programs  
4 which are inserted in the data broadcasting program, the program  
5 has the computer conduct the steps of:

6 an allotment step for

7 (a) allotting a broadcasting bandwidth for a first time  
8 period and a second time period to the first specific program  
9 and the second specific program, the first time period and the  
10 second time period are included in a total time period between  
11 a starting time and a finishing time for broadcasting the data  
12 broadcasting program, and

13 (b) allotting (1) a broadcasting bandwidth to the data  
14 broadcasting data program in the total time period except for  
15 the first time period and the second time period, (2) a part  
16 of the broadcasting bandwidth to the first specific program for  
17 a time period preceding to the first time period in the total  
18 time period, and (3) a part of the broadcasting bandwidth to  
19 the second specific program for a time period preceding to the  
20 second time period in the total time period;

21 an instruction generation step for generating a first  
22 storage instruction and a second storage instruction that  
23 instruct a receiving apparatus to store a program data for the  
24 first specific program and a program data for the second  
25 specific program in a storing unit in the receiving apparatus,

26 respectively, and generating a first reproduction instruction  
27 and a second reproduction instruction that instruct the  
28 receiving apparatus to reproduce the program data for the first  
29 specific program and the program data for the second specific  
30 program, respectively, in case that the program data for the  
31 first specific program and the program data for the second  
32 specific program have been stored in the storing unit; and  
33 a transmission step for transmitting (a) a plurality of  
34 the first storage instructions before the first time period,  
35 (b) a plurality of the second storage instructions before the  
36 second time period, (c) the first reproduction instruction at  
37 the starting time of the first time period, and (d) the second  
38 reproduction instruction at the starting time of the second time  
39 period, while repeatedly transmitting the program data of each  
40 of the data broadcasting program, the first specific program,  
41 and the second specific program in accordance with the result  
42 of allotment in the allotment step.